

WHAT IS CLAIMED IS:

1. An optical disc reading device for reading a picked-up signal from a rotating optical disc by an optical pickup unit, said optical disc reading device comprising:

5 amplifying means for amplifying the picked-up signal to produce an amplified signal; and

 gain control means for controlling a gain of said amplifying means so that a peak level of the amplified signal is fixed.

2. An optical disc reading device as claimed in claim 1, wherein said
10 optical pickup unit comprises an optical pickup unit of a polarization optical system.

3. An optical disc reading device as claimed in claim 1, wherein said gain control means comprises a peak hold circuit for holding a peak of the picked-up signal to produce a peak held signal,

15 said amplifying means comprising a gain control amplifier for amplifying the picked-up signal by a gain equal to a reciprocal of the peak held signal to produce the amplified signal.

4. An optical disc reading device as claimed in claim 2, wherein said gain control means comprises a peak hold circuit for holding a peak of the
20 picked-up signal to produce a peak held signal,

 said amplifying means comprising a gain control amplifier for amplifying the picked-up signal by a gain equal to a reciprocal of the peak held signal to produce the amplified signal.

5. An optical disc reading device as claimed in claim 1, wherein said
25 gain control means comprises a peak hold circuit for holding a peak of the picked-up signal to produce a peak held signal,

 said amplifying means comprising a divider for dividing the picked-up signal by the peak held signal to produce a divided result as the amplified signal.

6. An optical disc reading device as claimed in claim 2, wherein said gain control means comprises a peak hold circuit for holding a peak of the picked-up signal to produce a peak held signal,

5 said amplifying means comprising a divider for dividing the picked-up signal by the peak held signal to produce a divided result as the amplified signal.

7. An optical disc drive for picking up a signal from a rotating optical disc by an optical pickup unit, said optical disc drive comprising:

means for preliminarily moving said optical pickup unit to a predetermined position of said optical disc before carrying out reading/writing of data for said optical disc;

measuring means for measuring a peak level of an HF signal obtained by said optical pickup unit with a rotation speed of said optical disc changed;

means for using, as a reference level, the peak level of said HF signal obtained by said optical pickup unit on rotating said optical disc at a low rotation speed without effect of stress;

estimating means for estimating an amount of double refraction of said optical disc using said reference level and a peak level of the HF signal measured on rotating said optical disc at a desired rotation speed; and

reducing means for reducing the rotation speed of said optical disc by determining the influence of the double refraction of said optical disc caused by the stress occurring by rotation of said optical disc when the estimated amount of double refraction is not less than a predetermined amount of double refraction.

8. An optical disc drive as claimed in claim 7, wherein said optical disc drive further comprises means for repeating an estimation operation by said estimating means and a reduction operation by said reducing means until the estimated amount of double refraction is less than the predetermined amount of double refraction.

9. An optical disc drive as claimed in claim 7, wherein said optical pickup unit comprises an optical pickup unit of a polarization optical system.

10. An optical disc drive for picking up a signal from a rotating optical disc by an optical pickup unit, said optical disc drive comprising:

5 means for preliminarily moving said optical pickup unit to a predetermined position of said optical disc before carrying out reading/writing of data for said optical disc;

measuring means for measuring an amplitude of an HF signal obtained by said optical pickup unit with a rotation speed of said optical disc
10 changed;

means for using, as a reference amplitude, the amplitude of said HF signal obtained by said optical pickup unit on rotating said optical disc at a low rotation speed without effect of stress;

estimating means for estimating an amount of double refraction of said
15 optical disc using said reference amplitude and an amplitude of the HF signal measured on rotating said optical disc at a desired rotation speed; and

reducing means for reducing the rotation speed of said optical disc by determining the influence of the double refraction of said optical disc caused by the stress occurring by rotation of said optical disc when the estimated amount
20 of double refraction is not less than a predetermined amount of double refraction.

11. An optical disc drive as claimed in claim 10, wherein said optical disc drive further comprises means for repeating an estimation operation by said estimating means and a reduction operation by said reducing means until
25 the estimated amount of double refraction is less than the predetermined amount of double refraction.

12. An optical disc drive as claimed in claim 10, wherein said optical pickup unit comprises an optical pickup unit of a polarization optical system.

13. An optical disc drive for picking up a signal from a rotating optical disc by an optical pickup unit, said optical disc drive comprising:

means for preliminarily rotating said optical disc at a desired rotation speed before carrying out reading/writing of data for said optical disc;

5 measuring means for measuring a peak level of an HF signal obtained by said optical pickup unit with said optical pickup moved from an inner circumference to an outer circumference of said optical disc;

means for using, as a reference level, the peak level of said HF signal obtained by said optical pickup unit when said optical pickup unit lies in an inner
10 circumference of said optical disc;

estimating means for estimating an amount of double refraction of said optical disc using said reference level and a peak level of the HF signal measured when said optical pickup unit lies in a predetermined outer circumference position of said optical disc; and

15 reducing means for reducing the rotation speed of said optical disc by determining the influence of the double refraction of said optical disc caused by stress occurring by rotation of said optical disc when the estimated amount of double refraction is not less than a predetermined amount of double refraction.

14. An optical disc drive as claimed in claim 13, wherein said optical
20 disc drive further comprises means for repeating an estimation operation by said estimating means and a reduction operation by said reducing means until the estimated amount of double refraction is less than the predetermined amount of double refraction.

15. An optical disc drive as claimed in claim 13, wherein said optical
25 pickup unit comprises an optical pickup unit of a polarization optical system.

16. An optical disc drive for picking up a signal from a rotating optical disc by an optical pickup unit, said optical disc drive comprising:

means for preliminarily rotating said optical disc at a desired rotation speed before carrying out reading/writing of data for said optical disc;

measuring means for measuring an amplitude of an HF signal obtained by said optical pickup unit with said optical pickup moved from an
5 inner circumference to an outer circumference of said optical disc;

means for using, as a reference amplitude, the amplitude of said HF signal obtained by said optical pickup unit when said optical pickup unit lies in an inner circumference of said optical disc;

estimating means for estimating an amount of double refraction of said
10 optical disc using said reference amplitude and an amplitude of the HF signal measured when said optical pickup unit lies in a predetermined outer circumference position of said optical disc; and

reducing means for reducing the rotation speed of said optical disc by determining the influence of the double refraction of said optical disc caused by
15 stress occurring by rotation of said optical disc when the estimated amount of double refraction is not less than a predetermined amount of double refraction.

17. An optical disc drive as claimed in claim 16, wherein said optical disc drive further comprises means for repeating an estimation operation by said estimating means and a reduction operation by said reducing means until
20 the estimated amount of double refraction is less than the predetermined amount of double refraction.

18. An optical disc drive as claimed in claim 16, wherein said optical pickup unit comprises an optical pickup unit of a polarization optical system.

19. An optical disc drive for picking up a signal from a rotating optical
25 disc by an optical pickup unit, said optical disc drive comprising:

means for making said optical disc rotate at a low rotation speed with no stress during reading/writing of data for said optical disc;

means for measuring a peak level of an HF signal obtained by said optical pickup unit with said optical pickup unit moved in an inner circumference of said optical disc to store a measured peak level as a reference level;

means for making said optical disc rotate at a desired rotation speed;

5 means for measuring a peak level of the HF signal obtained by said optical pickup unit with said optical pickup unit moved from the inner circumference toward an outer circumference of said optical disc;

means for estimating an amount of double refraction of said optical disc using said reference level and a peak level of the HF signal measured
10 every when said optical pickup unit lies in predetermined positions of said optical disc; and

means for reducing the rotation speed of said optical disc by determining the influence of the double refraction of said optical disc caused by stress occurring by rotation of said optical disc when the estimated amount of
15 double refraction is not less than a predetermined amount of double refraction.

20. An optical disc drive as claimed in claim 19, wherein said optical pickup unit comprises an optical pickup unit of a polarization optical system.

21. An optical disc drive for picking up a signal from a rotating optical disc by an optical pickup unit, said optical disc drive comprising:

20 means for making said optical disc rotate at a low rotation speed with no stress during reading/writing of data for said optical disc;

means for measuring an amplitude of an HF signal obtained by said optical pickup unit with said optical pickup unit moved in an inner circumference of said optical disc to store a measured peak level as a reference amplitude;

25 means for making said optical disc rotate at a desired rotation speed;

means for measuring an amplitude of the HF signal obtained by said optical pickup unit with said optical pickup unit moved from the inner circumference toward an outer circumference of said optical disc;

means for estimating an amount of double refraction of said optical disc using said reference amplitude and an amplitude of the HF signal measured every when said optical pickup unit lies in predetermined positions of said optical disc; and

5 means for reducing the rotation speed of said optical disc by determining the influence of the double refraction of said optical disc caused by stress occurring by rotation of said optical disc when the estimated amount of double refraction is not less than a predetermined amount of double refraction.

22. An optical disc drive as claimed in claim 21, wherein said optical
10 pickup unit comprises an optical pickup unit of a polarization optical system.

23. An optical disc drive for picking up a signal from a rotating optical disc by an optical pickup unit, said optical disc drive comprising:

means for preliminarily rotating said optical disc at a desired rotation speed before carrying out reading/writing of data for said optical disc;

15 measuring means for measuring a peak level of an HF signal obtained by said optical pickup unit with said optical pickup moved from an inner circumference to an outer circumference of said optical disc;

means for using, as a reference level, the peak level of said HF signal obtained by said optical pickup unit when said optical pickup unit lies in an inner
20 circumference of said optical disc;

estimating means for estimating an amount of double refraction of said optical disc using said reference level and a peak level of the HF signal measured when said optical pickup unit lies in a predetermined outer circumference position of said optical disc; and

25 correcting means for carrying out correction by determining the influence of the double refraction of said optical disc caused by stress occurring by rotation of said optical disc when the estimated amount of double refraction is not less than a predetermined amount of double refraction.

24. An optical disc drive as claimed in claim 23, wherein said optical pickup unit comprises an optical pickup unit of a polarization optical system.

25. An optical disc drive as claimed in claim 23, wherein said correcting means comprises means for correcting a gain of an amplifier for
5 amplifying said HF signal.

26. An optical disc drive as claimed in claim 23, wherein said correcting means comprises means for correcting quantity of light radiated by a semiconductor laser in said optical pickup unit.

27. An optical disc drive for picking up a signal from a rotating optical
10 disc by an optical pickup unit, said optical disc drive comprising:

means for preliminarily rotating said optical disc at a desired rotation speed before carrying out reading/writing of data for said optical disc;

measuring means for measuring an amplitude of an HF signal obtained by said optical pickup unit with said optical pickup moved from an
15 inner circumference to an outer circumference of said optical disc;

means for using, as a reference amplitude, the amplitude of said HF signal obtained by said optical pickup unit when said optical pickup unit lies in an inner circumference of said optical disc;

estimating means for estimating an amount of double refraction of said
20 optical disc using said reference amplitude and an amplitude of the HF signal measured when said optical pickup unit lies in a predetermined outer circumference position of said optical disc; and

correcting means for carrying out correction by determining the influence of the double refraction of said optical disc caused by stress occurring
25 by rotation of said optical disc when the estimated amount of double refraction is not less than a predetermined amount of double refraction.

28. An optical disc drive as claimed in claim 27, wherein said optical pickup unit comprises an optical pickup unit of a polarization optical system.

29. An optical disc drive as claimed in claim 27, wherein said correcting means comprises means for correcting a gain of an amplifier for amplifying said HF signal.

5 30. An optical disc drive as claimed in claim 27, wherein said correcting means comprises means for correcting quantity of light radiated by a semiconductor laser in said optical pickup unit.

31. An optical disc drive for picking up a signal from a rotating optical disc by an optical pickup unit, said optical disc drive comprising:

10 means for making said optical disc rotate at a low rotation speed with no stress during reading/writing of data for said optical disc;

means for measuring a peak level of an HF signal obtained by said optical pickup unit with said optical pickup unit moved in an inner circumference of said optical disc to store a measured peak level as a reference level;

means for making said optical disc rotate at a desired rotation speed;

15 means for measuring a peak level of the HF signal obtained by said optical pickup unit with said optical pickup unit moved from the inner circumference toward an outer circumference of said optical disc;

20 means for estimating an amount of double refraction of said optical disc using said reference level and a peak level of the HF signal measured every when said optical pickup unit lies in predetermined positions of said optical disc; and

correcting means for carrying out correction by determining the influence of the double refraction of said optical disc caused by stress occurring by rotation of said optical disc when the estimated amount of double refraction is not less than a predetermined amount of double refraction.

32. An optical disc drive as claimed in claim 31, wherein said optical pickup unit comprises an optical pickup unit of a polarization optical system.

33. An optical disc drive as claimed in claim 31, wherein said correcting means comprises means for correcting a gain of an amplifier for amplifying said HF signal.

34. An optical disc drive as claimed in claim 31, wherein said
5 correcting means comprises means for correcting quantity of light radiated by a semiconductor laser in said optical pickup unit.

35. An optical disc drive for picking up a signal from a rotating optical disc by an optical pickup unit, said optical disc drive comprising:

means for making said optical disc rotate at a low rotation speed with
10 no stress during reading/writing of data for said optical disc;

means for measuring an amplitude of an HF signal obtained by said optical pickup unit with said optical pickup unit moved in an inner circumference of said optical disc to store a measured peak level as a reference amplitude;

means for making said optical disc rotate at a desired rotation speed;

15 means for measuring an amplitude of the HF signal obtained by said optical pickup unit with said optical pickup unit moved from the inner circumference toward an outer circumference of said optical disc;

means for estimating an amount of double refraction of said optical disc using said reference amplitude and an amplitude of the HF signal
20 measured every when said optical pickup unit lies in predetermined positions of said optical disc; and

correcting means for carrying out correction by determining the influence of the double refraction of said optical disc caused by stress occurring by rotation of said optical disc when the estimated amount of double refraction
25 is not less than a predetermined amount of double refraction.

36. An optical disc drive as claimed in claim 35, wherein said optical pickup unit comprises an optical pickup unit of a polarization optical system.

37. An optical disc drive as claimed in claim 35, wherein said correcting means comprises means for correcting a gain of an amplifier for amplifying said HF signal.

38. An optical disc drive as claimed in claim 35, wherein said
5 correcting means comprises means for correcting quantity of light radiated by a semiconductor laser in said optical pickup unit.